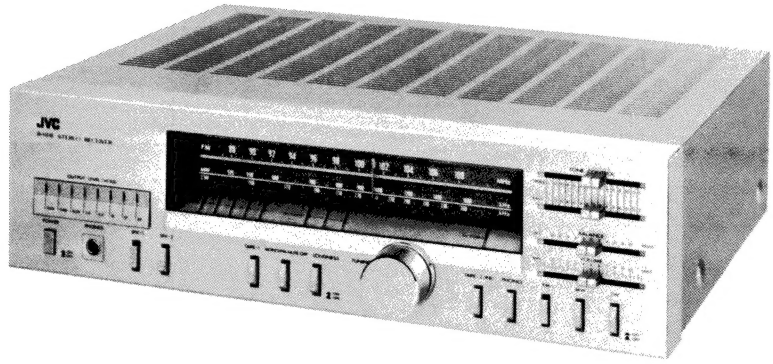
JVC

SERVICE MANUAL

MODEL
R-S11L
STEREO RECEIVER



No. 2517
FEB. 1980

Contents

Warning:
When replacing the parts marked with ⚠, be sure to use the designated parts to ensure safety.

1. Specifications

FM Tuner Section (Figures are based upon IHF standard)

Tuning Range	: 87.6 MHz – 108 MHz
Usable Sensitivity (IHF)	: 10.3 dBf (1.8 μV/300 Ω)
50 dB Quieting Sensitivity	
Mono	: 14.8 dBf (3.0 μV/300 Ω)
Stereo	: 38.3 dBf (45 μV/300 Ω)
Distortion	
Mono	: 0.15 % (1 kHz)
Stereo	: 0.3 % (1 kHz)
Signal to Noise Ratio	
Mono	: 82 dB (74 dB, DIN)
Stereo	: 70 dB (65 dB, DIN)
Selectivity	: 65 dB, ±400 kHz (35 dB, ±300 kHz, DIN)
Capture Ratio	: 1.0 dB
IF Rejection	: 90 dB at 98 MHz
Image Rejection	: 60 dB at 98 MHz
Stereo Separation	: 45 dB at 1 kHz

MW Tuner Section

Tuning Range	: 525 kHz – 1605 kHz
Usable Sensitivity	: 300 μV/m, 30 μV (External Antenna)
Signal to Noise Ratio	: 50 dB
Distortion	: 0.5 % at 10 mV/m
Selectivity	: 40 dB, ±10 kHz 36 dB ±9 kHz

LW Tuner Section

Tuning Section	: 150 kHz – 350 kHz
Usable Sensitivity	: 500 μV/m, 300 μV (External Antenna)
Signal to Noise Ratio	: 50 dB
Distortion	: 0.5 % at 10 mV/m
Selectivity	: 40 dB, ±10 kHz 36 dB, ±9 kHz

Amplifier Section

RMS Power		
Both channels driven, from 20 Hz to 20 kHz	: 25 W per channel at 8 ohms	
RMS Power	: 27 W per channel at 8 ohms	
Total Harmonic Distortion	: 0.03 % at rated power 20 Hz – 20 kHz 8 ohms 0.004 % at rated power 1 kHz 8 ohms	
Input Sensitivity/ Impedance		
PHONO	: 2.5 mV/47 kohms	
TAPE PLAY 1, 2	: 120 mV/40 kohms	
TAPE PLAY 1 (DIN)	: 120 mV/40 kohms	
Tone Control		
Bass	: ±8 dB at 100 Hz	
Treble	: ±8 dB at 10 kHz	
Hum and Noise (to rated input level)	: (Weighted by "A" network)	New IHF
PHONO	: 77 dB	75 dB
AUX, TAPE PLAY	: 97 dB	75 dB

Power Consumption

	Line Voltage & Frequency	Power Consumption
Continental Europe	AC 220 V∿, 50 Hz	310 W
U.K. & Australia	AC 240 V∿, 50 Hz	310 W

Dimensions			Weight
Height	Width	Depth	Net
11.9 cm	42.2 cm	34.5 cm	6.8 kg

2. Removal Procedures

2-(1) Top Cover and Bottom Plates

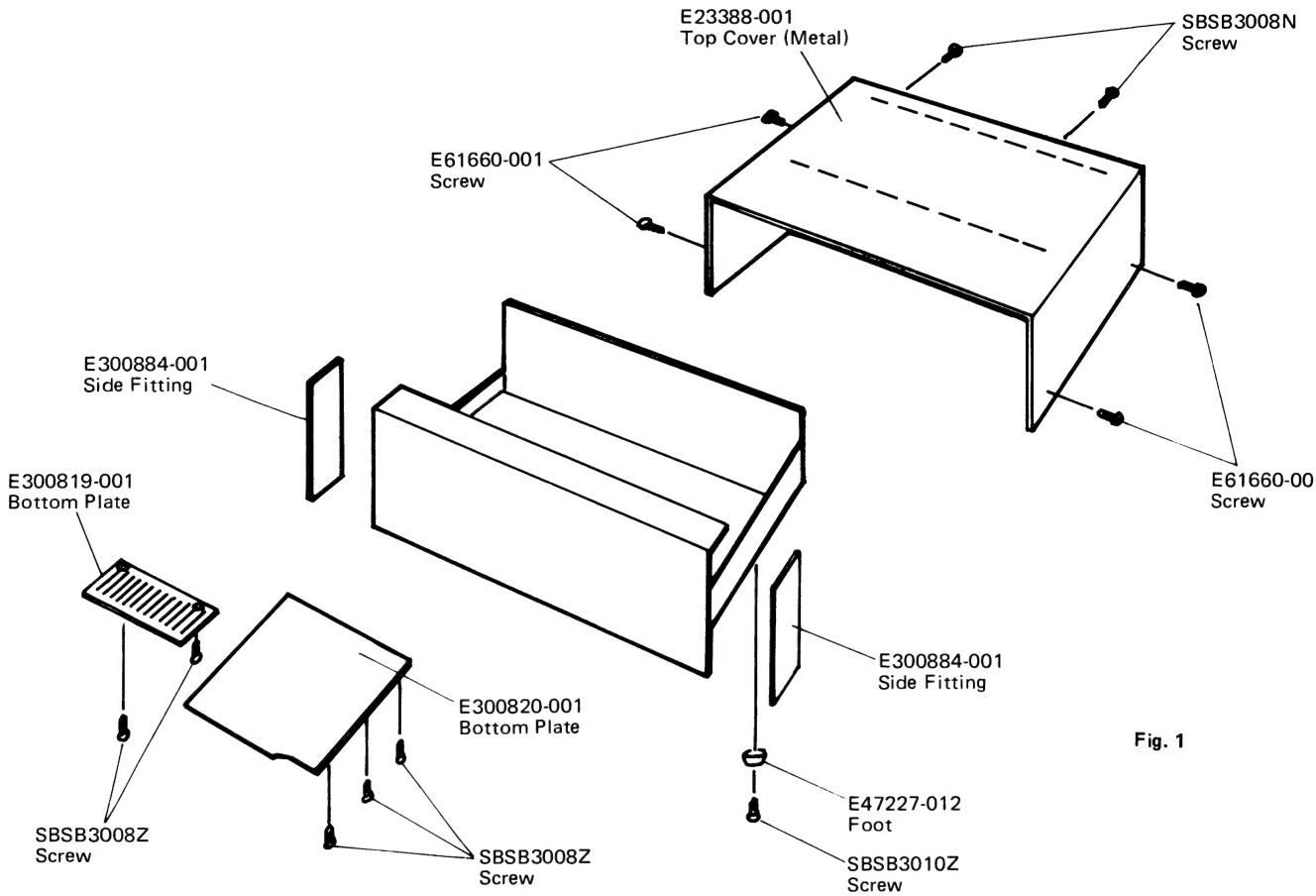


Fig. 1

2-(2) Power Transistors

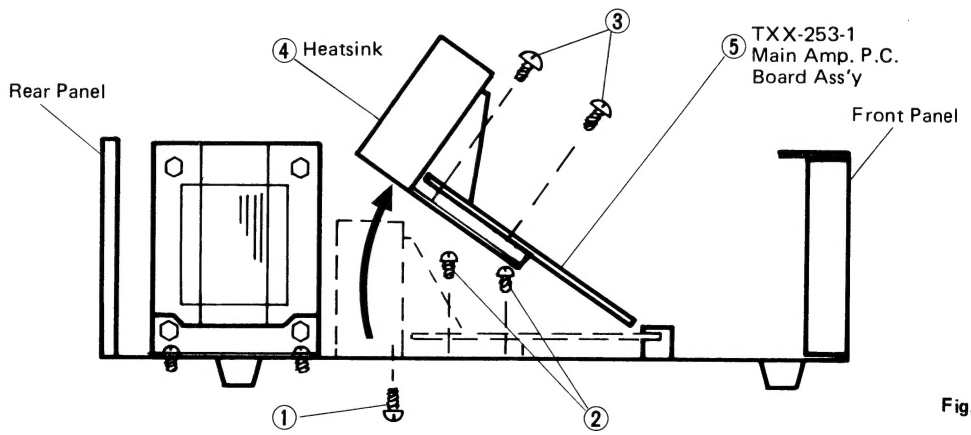


Fig. 2

Procedures:

Step 1: Remove the bottom plate from chassis and 2 screws ① from heatsink ④.

Step 2: Remove 4 screws ②.

Step 3: Raise TXX-253-1 ⑤ from chassis as arrowed on Fig. 2 and then resolder the power transistor's leads.

Step 4: Remove 4 screws ③ and heatsink from TXX-253-1 and then replace the power transistors.

3. Main Parts Location

3-(1) Top View

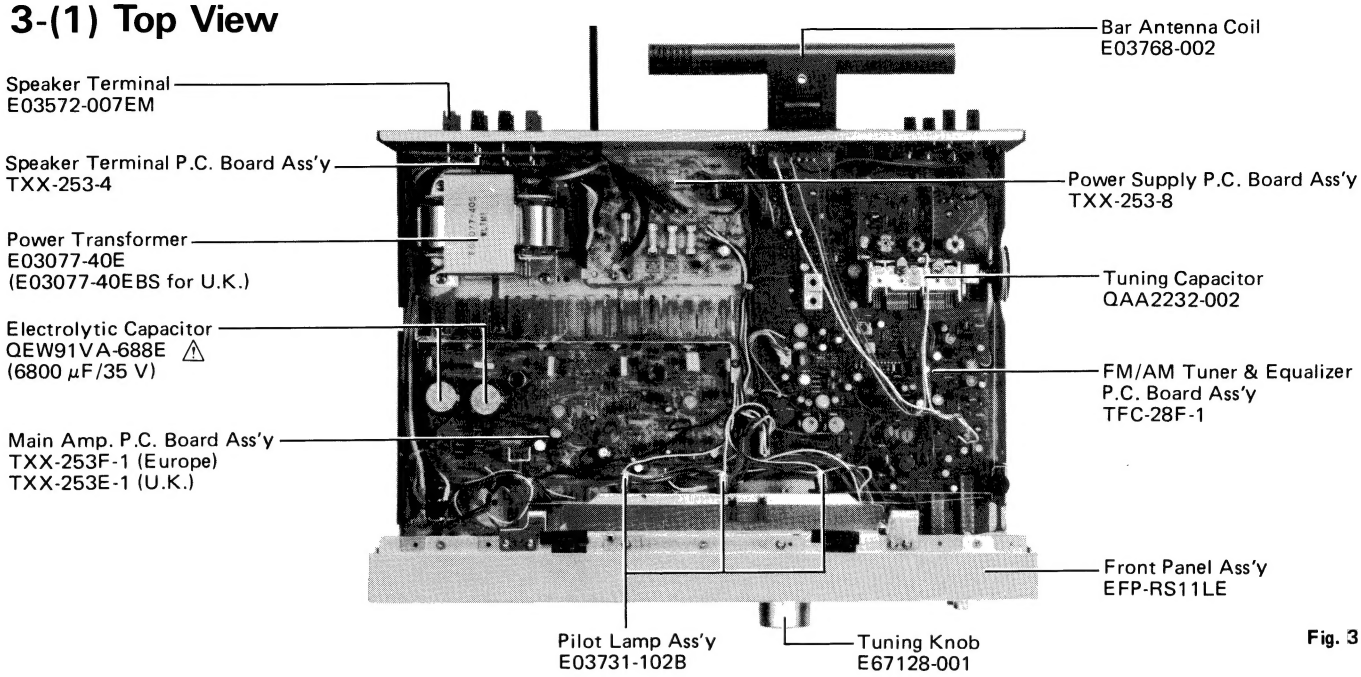


Fig. 3

3-(2) Front View

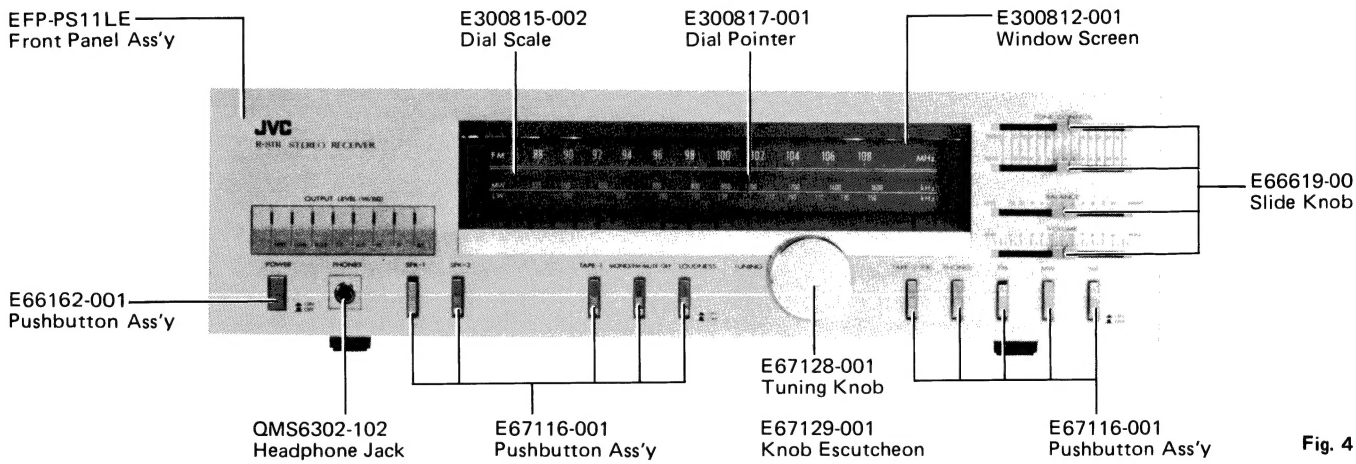


Fig. 4

3-(3) Rear View

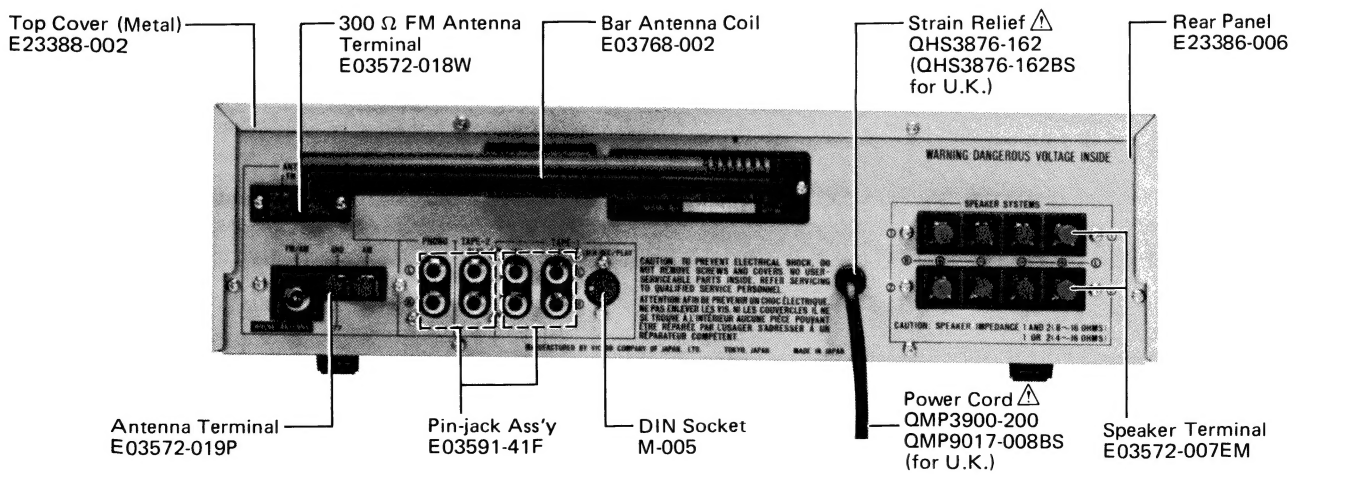


Fig. 5

⚠ : Safety Parts

4. Exploded View and Part Numbers

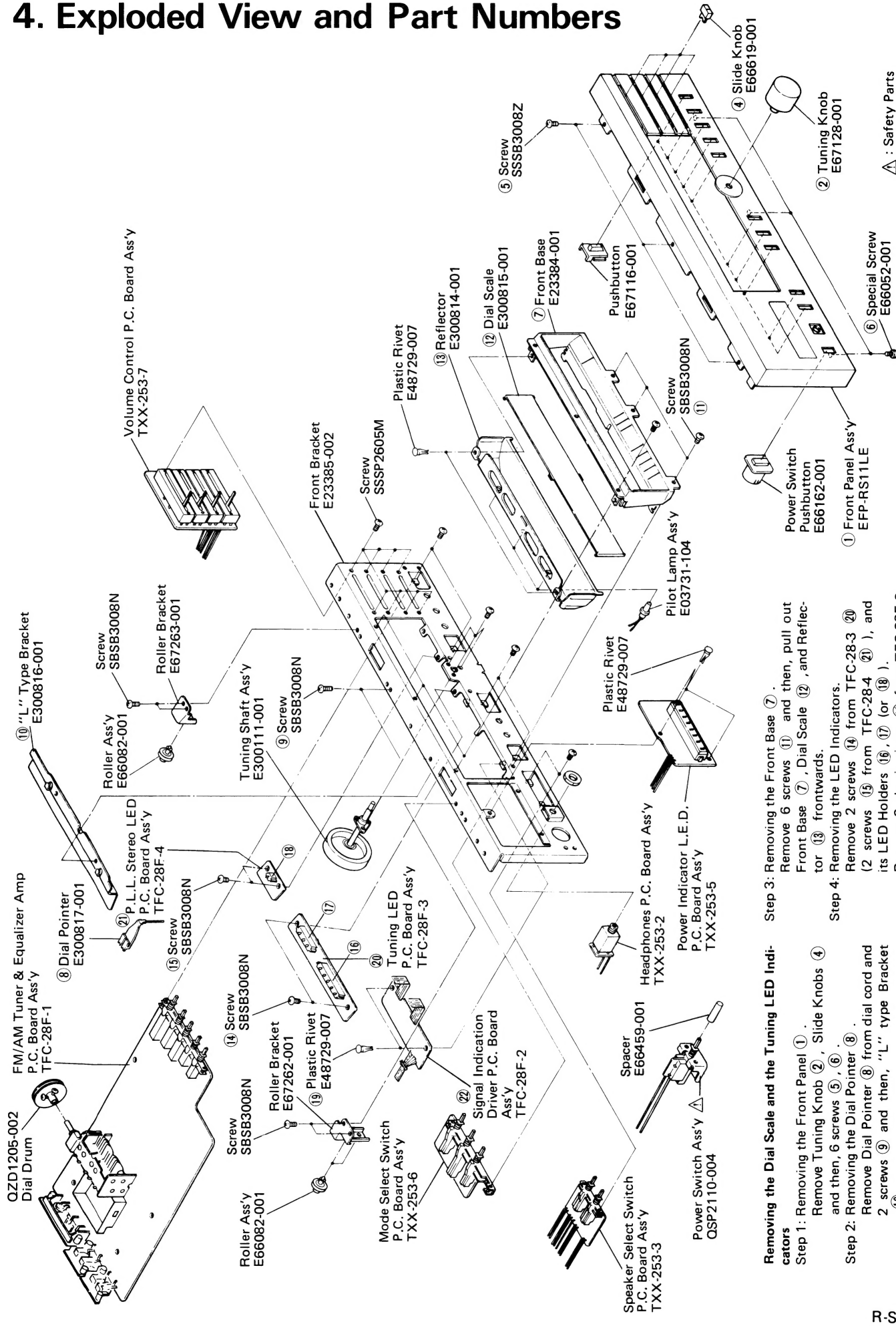


Fig. 6

⚠ : Safety Parts

Removing the Dial Scale and the Tuning LED Indicators

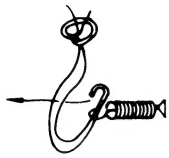
Step 1: Removing the Front Panel ① .
Remove Tuning Knob ② , Slide Knobs ④ and then, 6 screws ⑤ , ⑥ .

Step 2: Removing the Dial Pointer ⑧ .
Remove Dial Pointer ⑧ from dial cord and 2 screws ⑨ and then, "L" type Bracket ⑩ .

Step 3: Removing the Front Base ⑦ .
Remove 6 screws ⑪ and then, pull out Front Base ⑦ , Dial Scale ⑫ , and Reflector ⑬ frontwards.

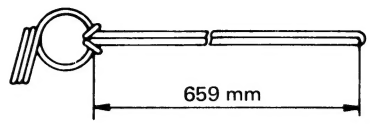
Step 4: Removing the LED Indicators.
Remove 2 screws ⑭ from TFC-28-3 ⑳ (2 screws ⑮ from TFC-28-4 ㉑), and its LED Holders ⑯ , ⑰ (or ⑱).
Remove 2 plastic rivets ⑲ from TFC-28F-2 ㉒ .

5. Dial Stringing Procedures



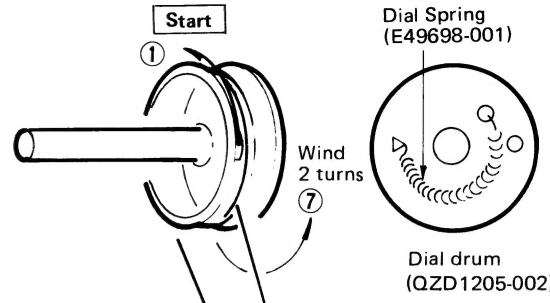
Put the string through the spring loop.

Fig. 7A



Tie the string in a knot having an indicated remaining length.

Fig. 7B



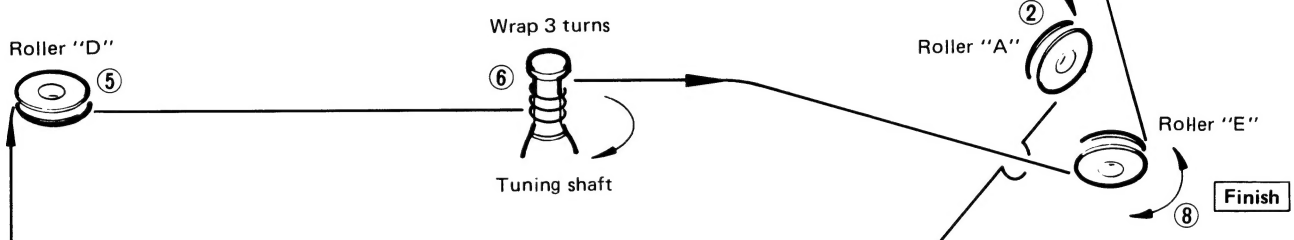


Fig. 7C

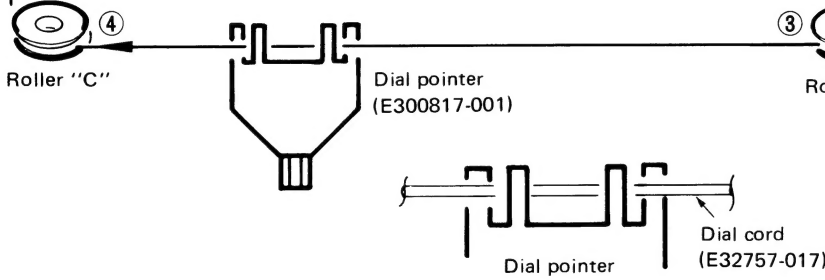
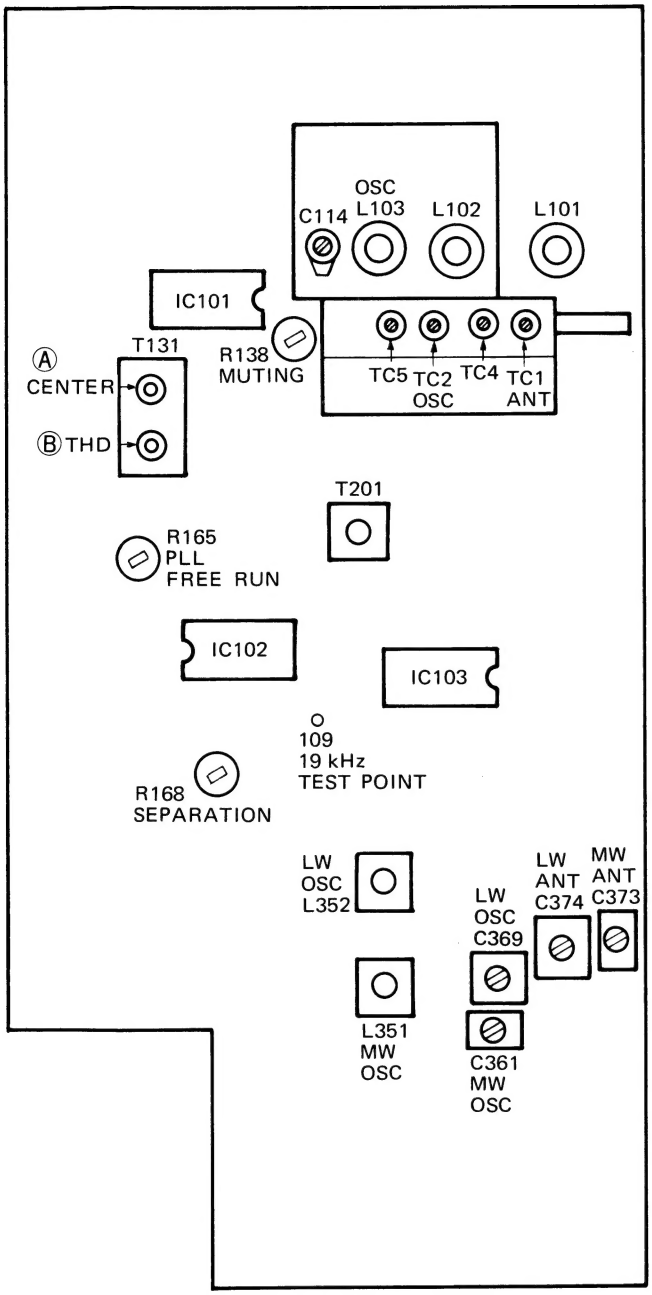


Fig. 7D

(1) Remove dial pointer and old cord.
(2) Tie end of new dial cord to one end of dial spring, connect other end of dial spring of bottom right eye inside dial drum.
(3) Rotate the tuning capacitor dial drum to its maximum counterclockwise.
(4) Run the dial cord through the slot in the rim of the dial drum. See step ①.
(5) Guide the dial cord around, over and under rollers "A", "B", "C" and "D". Keep the dial cord taut during this procedure. See step ② to ⑤.
(6) Pull the dial cord taut and wrap 3 turns counterclockwise around tuning shaft. See step ⑥.
(7) Guide the dial cord over the dial drum and wind 2 turns clockwise. See step ⑦.
(8) Pull the dial cord taut and set it around roller "E". See step ⑧.
(9) Turn the tuning shaft to rotate the dial drum fully counterclockwise and fully clockwise to distribute the tensioning along the dial cord.
(10) Place the dial cord over and under the tabs on the rear of the dial pointer and place the dial pointer on the top of the dial rail. See Fig. 7D.
(11) Turn the tuning shaft clockwise. Slide the dial pointer to zero(0) calibration marker on the logging scale while holding tuning shaft fully clockwise. Cement the dial pointer to the dial cord to prevent slippage. Allow cement to dry thoroughly.

6. FM/MW/LW Tuner Alignment Procedures



Alignment Location on TFC-28F FM/AM Tuner P.C. Board Ass'y Fig. 8

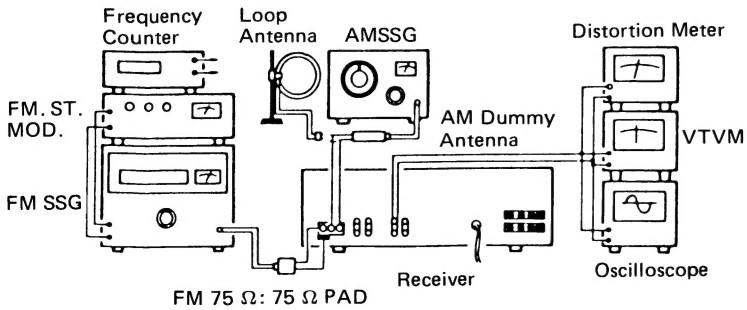


Fig. 9

6-(1) FM Section

Descriminator, Center Meter, Distortion and Signal Gain

1. Press to FM position.
2. Connect an RF generator, 1 kHz modulation and 75 kHz deviation, to the antenna terminals on the rear panel through a dummy antenna.
3. Connect an Oscilloscope, Distortion Meter and VTVM to the Rec. Out jacks on the rear panel.
4. Tune to a frequency where there is no broadcasting.
5. Adjust a core indicated arrow Ⓐ of T131 so that the FM Tuning L.E.D. illuminates the center position.
6. Set the RF generator to 98 MHz.
7. Set the dial pointer to 98 MHz.
8. Adjust a core indicated arrow Ⓑ of T131 so that the distortion is minimized at a value less than 0.4 %.

Tracking and Sensitivity

Precaution: No adjustment is necessary. The tracking and sensitivity have been adjusted properly and completely at the factory. If any special reason occasioned, take the following procedures carefully.

Low Frequency

1. Connect an RF generator the antenna terminals on the rear panel through a dummy antenna.
2. Set an RF generator to 88 MHz, a modulation of 1 kHz and a deviation of 75 kHz to provide an input of 2 μV.
3. Connect a VTVM and an Oscilloscope to the Rec. Out jacks on the rear panel.
4. Set the dial pointer to 88 MHz.
5. Adjust the three coils L103, L102 and L101 in the tuning gang to maximize the output.

High Frequency

6. Set the RF generator to 108 MHz, a modulation of 1 kHz and a deviation of 75 kHz, to provide an input of 2 μV.
7. Set the dial pointer to 108 MHz.
8. Adjust the FM trimmers C114, TC2 and TC1 in the tuning gang to maximize the output.
9. Repeat these high and low frequencies adjustment alternately until maximum sensitivity is obtained.

Multiplex and Stereo Separation

Multiplex

1. Set the Stereo signal generator as follows: 400 Hz modulation frequency, 7.5 kHz deviation pilot, 67.5 kHz main and sub carriers. Connect its output to an RF generator.
2. Connect an RF generator to the antenna terminals through a dummy antenna.
3. Connect a VTVM, an Oscilloscope and a Distortion Meter to the Rec. Out jacks on the rear panel.
4. Set the RF generator to 98 MHz and output of 1 mV.
5. Set the dial pointer to 98 MHz.
6. Connect the Frequency Counter to 19 kHz Test Point. (TP 109).
7. Switch off the pilot signal of Stereo Modulator.
8. Adjust R165 so that the frequency counter indicates 19 kHz (0~-50 Hz).

Stereo Separation

9. Switch the selector of Stereo Modulator to left channel modulation.
10. Adjust R168 so that the output of right channel is minimized.
11. Switch the selector of the modulator to right channel modulation.
12. Adjust R168 so that the left channel is minimized.
13. Set R168 to a average, if the separation of left and right is different.

Muting Level

Note: No adjustment is necessary. However, if the check-up is required, take the following steps.

1. Release the MONO/FM MUTE OFF pushbutton during this adjustment procedures.
2. Connect a VTVM and an Oscilloscope to the Rec. Out jacks on the rear panel.
3. Set the RF generator to 108 MHz, a modulation of 1 kHz and a deviation of 75 kHz, to provide an input of 8 μV.
4. Turn R138 clockwise and remember the point (or position) at which the muting ceases operating.
5. Turn R138 counterclockwise slightly so that the output level drops by 1 dB.
6. Attenuate the output of the RF generator to 2 dB from 8 μV of step 2 and check that the muting is still operating.

6-(2) MW(LW) Section

Note: ( ) for LW Alignment Procedures

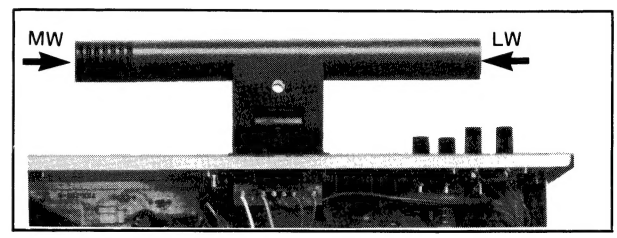
Tracking and Sensitivity

Low Frequency

1. Connect the RF generator to the antenna terminals on the rear panel, set this to 600 kHz (160 kHz) with 30 % modulation at 400 Hz.
2. Connect an AC VTVM and an oscilloscope to the Rec. out jacks on the rear panel.
3. Set the dial pointer to 600 kHz (160 kHz).
4. Adjust OSC coil L351 (L352) and the ferrite bar antenna core to maximize the output signal. Left ferrite bar is for MW (right ferrite bar is for LW). Refer to photo below.

High Frequency

5. Set the RF generator to 1400 kHz (350 kHz) with 30 % modulation at 400 Hz.
6. Set the dial pointer to 1400 kHz (350 kHz).
7. Adjust the trimmers C361 (C369) and C373 (C374) in the tuning gang so that the output signal is maximized.
8. Repeat these high and low frequencies adjustment procedures alternately until maximum sensitivity is obtained.



7. Power Amplifier Idling Current Adjustment Procedure

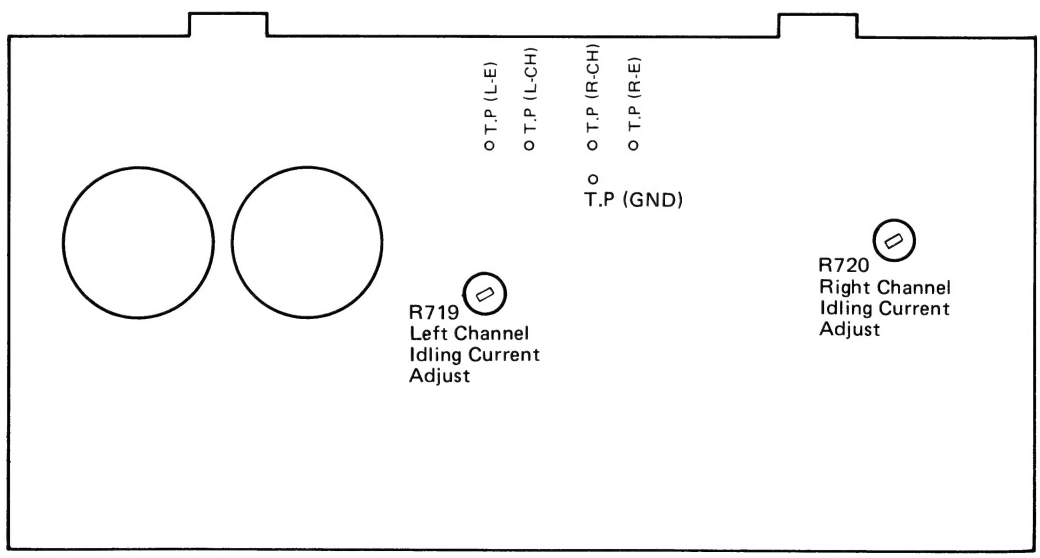


Fig. 10

Adjustment Location on TXX-253 Main Amp. P.C. Board Ass'y

Precaution:

(1) Allow the set to warm up at least 5 minutes before connecting a DC VTVM.

(2) Must keep the heatsinks cooling to prevent overheating and consequent destruction of the semiconductor junction and set the volume control to minimum during these adjustment procedures.

( ): for Right channel Adjustment

Procedures:

1. Turn R719 and (R720) fully counterclockwise before the power switch on.
2. Connect a DC VTVM to the Test Point L-CH and L-E (R-CH and R-E).
3. Adjust R719 (R720) for DC VTVM reading of 5 mV.

8. Printed Circuit Board Ass'y and Parts list

8-(1) TFC-28F FM/AM Tuner and Equalizer Amp. P.C. Board Ass'y

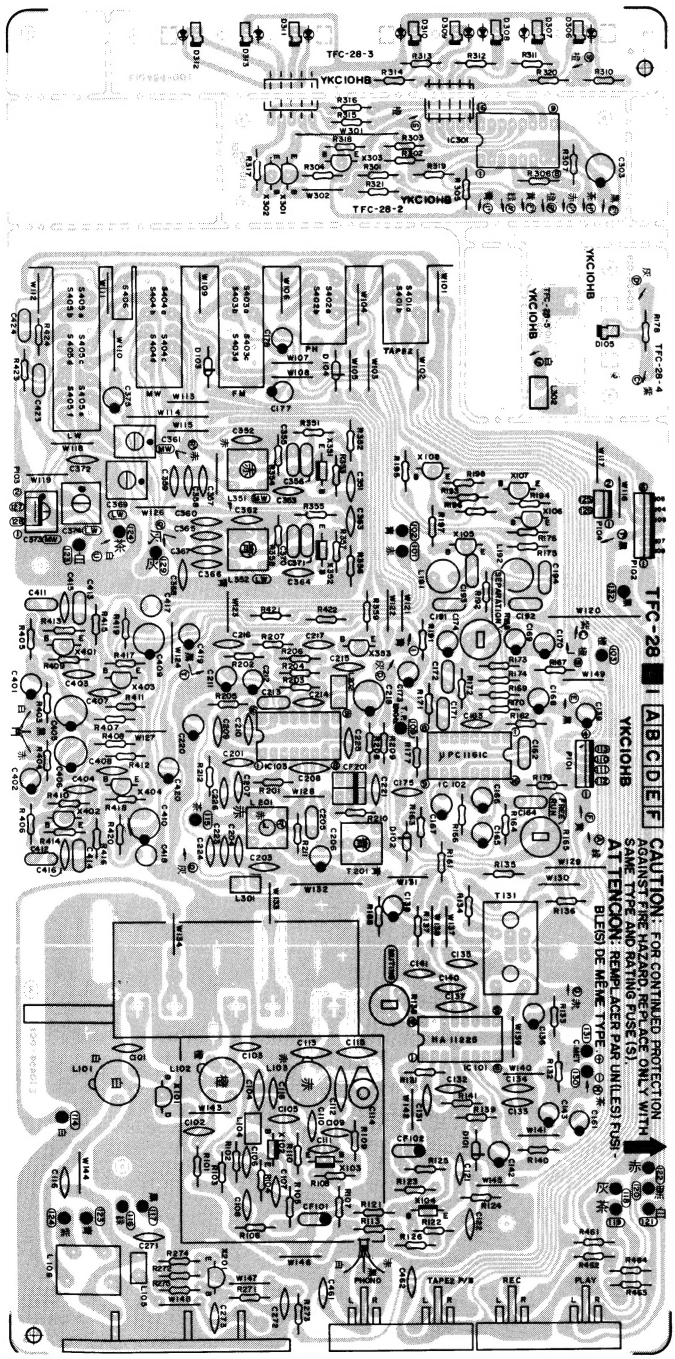


Fig. 11

Transistors

Item No.	Part Number	Rating		Description	
		Pc	fT		Maker
X101	2SK168(E,F)	0.2 W		FET	Hitachi
X102	2SC535(B,C)	0.1 W	940 MHz	Silicon	"
X103	2SC1342(B,C)	"	410 MHz	"	"
X104	2SC535(B,C)	"	940 MHz	"	"
X105	2SC458(C)	0.2 W	230 MHz	"	"
X106	2SC458(C)	"	"	"	"
X107	2SC458(C)	"	"	"	"
X108	2SA1029(C)	"	200 MHz	"	"
X201	2SC461(C)	"	230 MHz	"	"
X301	2SC458(C)	"	"	"	"

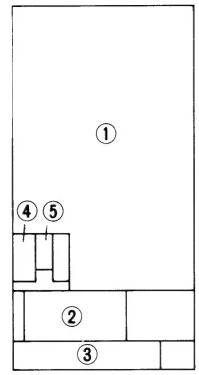


Fig. 12

Each Individual P.C. Board Location

① TFC-28F-1 : FM/AM Tuner & Equalizer Amp. P.C. Board Ass'y
② TFC-28-2 : Signal Indicator Driver P.C. Board Ass'y
③ TFC-28-3 : Signal indicator L.E.D. P.C. Board Ass'y
④ TFC-28-4 : PLL STEREO L.E.D. P.C. Board Ass'y
⑤ TFC-28-5 : Antenna Coil P.C. Board Ass'y

Note:
The specific symbols (赤, 黒, 白, . . . etc.) on a surface of P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly at the factory.

Transistors

Item No.	Part Number	Rating		Description	
		Pc	fT		Maker
X302	2SC458(C)	0.2 W	230 MHz	Silicon	Hitachi
X303	2SA1029(C)	"	200 MHz	"	"
X351	2SC461(B)	"	230 MHz	"	"
X352	2SC461(B)	"	"	"	"
X353	2SC458(C)	"	"	"	"
X401	2SA872AV(E)	0.3 W	120 MHz	"	"
X402	2SA872AV(E)	"	"	"	"
X403	2SC1775AV(F)	0.2 W	200 MHz	"	"
X404	2SC1775AV(F)	"	"	"	"

Integrated Circuits

Item No.	Part Number	Rating	Description	
		Pc		Maker
IC101	HA11225	0.59 W	IC	Hitachi
IC102	UPC1161C		"	NEC
IC103	HA1197	0.45 W	"	Hitachi
IC301	IR2434	1.0 W	"	Sharp

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D101	1S2076-31		Silicon	Hitachi
D102	1S2076-31		"	"
D103	1S2076-31		"	"
D104	1S2076-31		"	"
D308	SLB-26UR		LED	Toyo Dengu
D309	SLB-26UR		"	"
D310	SLB-26UR		"	"
D312	SLB-26UR		"	"
D306	SLB-26UR		"	"
D307	SLB-26UR		"	"
D311	SLB-26UR		"	"
D313	SLB-26GG		"	"

Coils & Transformers

Item No.	Part Number	Rating	Description
L101	E03477-031		FM ANT Coil
L102	E03477-035		FM RF Coil
L103	E03477-034		FM OSC Coil
L104	E03522-1R5KY		Choke Coil
L105	E03522-2R2KY		"
L106	E03177-005		BALUN
L191	Y00118-103		MPX 19 kHz Coil
L192	Y00118-103		"
L201	E03079-36		AM OSC Coil
L202	E03522-391KY		Choke Coil
L301	E03522-2R2KY		"
L302	E03522-2R2KY		"
L351	E03079-39		MW OSC Coil
L352	E03079-38		LW OSC Coil
T131	E03793-001		FM DET Coil
T201	E03613-017		AM IFT

Filters

Item No.	Part Number	Rating	Description
CF101	E03357-009		Ceramic Filter
CF102	E03357-009		"
CF201	E03613-019		"

Capacitors

Item No.	Part Number	Rating		Description
C101	QCS31HJ-120Z	12 pF	50 V	Ceramic
C102	QCF31HP-103Z	0.01 μF	"	"
C103	QCS31HJ-150Z	15 pF	"	"
C104	QCS21HJ-3R0	3 pF	"	"
C105	QCS21HJ-2R0	2 pF	"	"
C106	QCS31HJ-151Z	160 pF	"	"
C107	QCF31HP-103Z	0.01 μF	"	"
C108	QCF31HP-103Z	"	"	"
C109	QCF21HP-103	"	"	"
C110	QCT25CH-100Z	10 pF	"	"
C111	QCT25CH-220Z	22 pF	"	"
C112	QCT05CH-7R0	7 pF	"	"
C113	QCT05PH-120	12 pF	"	"
C114	QAT3001-014			Trimmer
C115	QCT05RH-120	12 pF	50 V	Ceramic
C116	QCS31HJ-221Z	220 pF	"	"
C121	QCF31HP-223Z	0.022 μF	"	"
C122	QCF31HP-223Z	"	"	"
C131	QCF31HP-223Z	"	"	"
C132	QCF31HP-223Z	"	"	"
C133	QCS31HJ-330Z	33 pF	"	"
C134	QCF31HP-223Z	0.022 μF	"	"
C135	QCF31HP-223Z	"	"	"
C136	QET61AR-107Z	100 μF	10 V	Electrolytic
C137	QCF21HP-223	0.022 μF	50 V	Ceramic
C138	QET61CR-476Z	47 μF	16 V	Electrolytic
C139	QET61HR-474Z	0.47 μF	50 V	"
C140	QCF31HP-223Z	0.022 μF	"	Ceramic
C141	QCF21HP-223	"	"	"
C142	QET61ER-106Z	10 μF	25 V	Electrolytic
C143	QET61HR-474Z	0.47 μF	50 V	"
C161	QET61ER-106Z	10 μF	25 V	"
C162	QFM31HK-473	0.047 μF	50 V	Mylar
C163	QCS31HJ-101Z	100 pF	"	Ceramic
C164	QFP31HJ-471	470 pF	"	Polypropyrene
C165	QEB51EM-335	3.3 μF	25 V	Low Leak Current Electrolytic
C166	QEB51HM-105	1 μF	50 V	"
C167	QEB51HM-224	0.22 μF	"	"
C168	QET61CR-107Z	100 μF	16 V	Electrolytic

Capacitors

Item No.	Part Number	Rating		Description
C169	QET61ER-106Z	10 μF	25 V	Electrolytic
C170	QET61ER-106Z	"	"	"
C171	QFM31HK-102Z	1000 pF	50 V	Mylar
C171	QFM31HK-152Z	1500 pF	"	"
C172	QFM31HK-102Z	1000 pF	"	"
C172	QFM31HK-152Z	1500 pF	"	"
C173	QET61HR-225Z	2.2 μF	"	Electrolytic
C174	QET51HR-225	"	"	"
C175	QCF31HP-223Z	0.022 μF	"	Ceramic
C177	QET61HR-474Z	0.47 μF	"	Electrolytic
C178	QET61HR-474Z	"	"	"
C191	QFM31HK-682Z	6800 pF	"	Mylar
C192	QFM31HK-682Z	"	"	"
C193	QFM31HK-182Z	1800 pF	"	"
C194	QFM31HK-182Z	"	"	"
C201	QCF31HP-223Z	0.022 μF	"	Ceramic
C203	QCT25UJ-150Z	15 pF	"	"
C204	QCS31HJ-330Z	33 pF	"	"
C205	QFM31HK-103Z	0.01 μF	"	Mylar
C206	QET61ER-106Z	10 μF	25 V	Electrolytic
C207	QCF31HP-223Z	0.022 μF	50 V	Ceramic
C208	QCF21HP-223	"	"	"
C209	QCF31HP-223Z	"	"	"
C210	QCF31HP-223Z	"	"	"
C211	QET61HR-105Z	1 μF	"	Electrolytic
C212	QET61ER-106Z	10 μF	25 V	"
C213	QFM31HK-102Z	1000 pF	50 V	Mylar
C214	QCF31HP-223Z	0.022 μF	"	"
C215	QCS31HJ-331Z	330 pF	"	"
C216	QCF31HP-103Z	0.1 μF	"	"
C217	QCF31HP-223Z	0.022 μF	"	"
C218	QET61CR-476Z	47 μF	16 V	Electrolytic
C220	QET61ER-106Z	10 μF	25 V	"
C221	QCS31HJ-560Z	56 pF	50 V	Ceramic
C223	QCT26CH-151	150 pF	"	"
C224	QCT26CH-151	"	"	"
C225	QCS31HJ-470Z	47 pF	"	"
C226	QCS31HJ-330Z	33 pF	"	"
C271	QCF31HP-473Z	0.047 μF	"	"
C272	QCF31HP-473Z	"	"	"
C273	QCF31HP-223Z	0.022 μF	"	"
C303	QET61CR-107Z	100 μF	16 V	Electrolytic
C303	QET61HR-105Z	1 μF	50 V	"
C304	QET61CR-107Z	100 μF	16 V	"
C351	QCF31HP-473Z	0.047 μF	50 V	Ceramic
C352	QCF31HP-473Z	"	"	"
C353	QCS31HJ-100Z	10 pF	"	"
C355	QFM31HK-103Z	0.01 μF	"	Mylar
C356	QFM31HK-153Z	0.015 μF	"	"
C357	QCT25PH-151Z	150 pF	"	Ceramic
C358	QCT25PH-151Z	"	"	"
C359	QCS31HJ-330Z	33 pF	"	"
C360	QCT25UJ-100Z	10 pF	"	"
C361	QAT20001-001			Trimmer
C362	QCF31HP-473Z	0.047 μF	50 V	Ceramic
C363	QCF31HP-473Z	"	"	"
C364	QCS31HJ-560Z	56 pF	"	"
C365	QCT25UJ-270Z	27 pF	"	"
C366	QCT25CH-680Z	68 pF	"	"
C367	QCT25CH-680Z	"	"	"
C368	QCT25CH-220Z	22 pF	"	"
C369	QAT2001-005			Trimmer
C370	QFM31HK-223Z	0.022 μF	50 V	Mylar
C371	QFM31HK-333Z	0.033 μF	"	"
C372	QCS31HJ-180Z	18 pF	"	Ceramic
C373	QAT2001-005			Trimmer
C374	QAT2001-001			"
C375	QET61HR-474Z	0.47 μF	50 V	Electrolytic
C401	QET61HR-475Z	4.7 μF	"	"
C402	QET61HR-475Z	"	"	"

Capacitors

Item No.	Part Number	Rating		Description
C403	QCS31HJ-471Z	470 pF	50 V	Ceramic
C404	QCS31HJ-471Z	"	"	"
C405	QET60JR-227Z	220 μF	6.3 V	Electrolytic
C406	QET60JR-227Z	"	"	"
C407	QCS31HJ-470Z	47 pF	50 V	Ceramic
C408	QCS31HJ-470Z	"	"	"
C409	QET60JR-227Z	220 μF	6.3 V	Electrolytic
C410	QET60JR-227Z	"	"	"
C411	QFM31HK-153Z	0.015 μF	50 V	Mylar
C412	QFM31HK-153Z	"	"	"
C413	QFM31HK-472Z	4700 pF	"	"
C414	QFM31HK-472Z	"	"	"
C415	QCS31HJ-471Z	470 pF	"	Ceramic
C416	QCS31HJ-471Z	"	"	"
C417	QEZ0046-105	1 μF	"	Electrolytic
C418	QEZ0046-105	"	"	"
C419	QET61ER-476Z	47 μF	25 V	"
C420	QET61ER-476Z	"	"	"
C423	QFM31HK-153Z	0.015 μF	50 V	Mylar
C424	QFM31HK-153Z	"	"	"
C461	QCF31HP-223Z	0.022 μF	"	Ceramic
C462	QCF31HP-473Z	0.047 μF	"	"

Resistors

Item No.	Part Number	Rating		Description
R101	QRD141J-391SY	390 Ω	1/4 W	Carbon
R102	QRD141J-472SY	4.7 kΩ	"	"
R103	QRD141J-223SY	22 kΩ	"	"
R104	QRD141J-102SY	1 kΩ	"	"
R105	QRD141J-101SY	100 Ω	"	"
R106	QRD141J-561SY	560 Ω	"	"
R107	QRD141J-222SY	2.2 kΩ	"	"
R108	QRD141J-103SY	10 kΩ	"	"
R109	QRD141J-682SY	6.8 kΩ	"	"
R110	QRD141J-272SY	2.7 kΩ	"	"
R113	QRD149J-220S	22 Ω	"	" ⚠
R121	QRD141J-221SY	220 Ω	"	"
R122	QRD141J-273SY	27 kΩ	"	"
R123	QRD141J-103SY	10 kΩ	"	"
R124	QRD141J-471SY	470 Ω	"	"
R125	QRD141J-101SY	100 Ω	"	"
R126	QRD141J-331SY	330 Ω	"	"
R131	QRD141J-391SY	390 Ω	"	"
R132	QRD141J-271SY	270 Ω	"	"
R133	QRD141J-123SY	12 kΩ	"	"
R134	QRD141J-332SY	3.3 kΩ	"	"
R135	QRD149J-470S	47 Ω	"	" ⚠
R136	QRD141J-472SY	4.7 kΩ	"	"
R137	QRD141J-823SY	82 kΩ	"	"
R138	QVP4AOB-223	22 kΩ		Variable
R139	QRD141J-473SY	47 kΩ	1/4 W	Carbon
R140	QRD141J-123SY	12 kΩ	"	"
R141	QRD141J-103SY	10 kΩ	"	"
R161	QRD141J-363SY	36 kΩ	"	"
R162	QRD141J-393S	39 kΩ	"	"
R163	QRD141J-683SY	68 kΩ	"	"
R164	QRD141J-163SY	16 kΩ	"	"
R165	QVP4AOB-472	4.7 kΩ		Variable
R166	QRD141J-102SY	1 kΩ	1/4 W	Carbon
R167	QRD149J-330S	33 Ω	"	" ⚠
R168	QRD141J-222SY	470 kΩ		Variable
R169	QRD141J-223SY	22 kΩ	1/4 W	Carbon
R170	QRD141J-223SY	"	"	"
R171	QRD141J-513SY	51 kΩ	"	"
R172	QRD141J-513SY	"	"	"
R173	QRD141J-103SY	10 kΩ	"	"
R174	QRD141J-103SY	"	"	"
R175	QRD141J-332SY	3.3 kΩ	"	"
R176	QRD141J-332SY	"	"	"
R177	QRD141J-102SY	1 kΩ	"	"

Resistors

Item No.	Part Number	Rating		Description
R178	QRD141J-222SY	2.2 kΩ	1/4 W	Carbon
R179	QRD141J-104SY	100 kΩ	"	"
R191	QRD141J-332SY	3.3 kΩ	"	"
R192	QRD141J-332SY	"	"	"
R193	QRD141J-104SY	100 kΩ	"	"
R194	QRD141J-393SY	39 kΩ	"	"
R195	QRD141J-223SY	10 kΩ	"	"
R196	QRD141J-223SY	22 kΩ	"	"
R197	QRD141J-223SY	"	"	"
R198	QRD141J-223SY	"	"	"
R201	QRD141J-152SY	1.5 kΩ	"	"
R202	QRD141J-103SY	10 kΩ	"	"
R203	QRD141J-103SY	"	"	"
R204	QRD141J-331SY	330 Ω	"	"
R205	QRD141J-562SY	5.6 kΩ	"	"
R206	QRD141J-222SY	2.2 kΩ	"	"
R207	QRD141J-104SY	100 kΩ	"	"
R208	QRD141J-151SY	150 Ω	"	"
R209	QRD141J-151SY	"	"	"
R210	QRD141J-221SY	220 Ω	"	"
R211	QRD141J-561SY	560 Ω	"	"
R212	QRD141J-151SY	150 Ω	"	"
R271	QRD141J-104SY	100 kΩ	"	"
R272	QRD141J-222SY	2.2 kΩ	"	"
R273	QRD141J-331SY	330 Ω	"	"
R274	QRD141J-182SY	1.8 kΩ	"	"
R275	QRD141J-153SY	15 kΩ	"	"
R301	QRD141J-683SY	68 kΩ	"	"
R302	QRD141J-563SY	56 kΩ	"	"
R303	QRD141J-154SY	150 kΩ	"	"
R304	QRD141J-103SY	10 kΩ	"	"
R305	QRD141J-333SY	33 kΩ	"	"
R306	QRD141J-102SY	1 kΩ	"	"
R307	QRD141J-303SY	30 kΩ	"	"
R310	QRD141J-102SY	1 kΩ	"	"
R311	QRD141J-102SY	"	"	"
R312	QRD141J-102SY	"	"	"
R313	QRD141J-102SY	"	"	"
R314	QRD141J-102SY	"	"	"
R315	QRD141J-102SY	"	"	"
R316	QRD141J-102SY	"	"	"
R317	QRD141J-681SY	680 Ω	"	"
R318	QRD141J-682SY	6.8 kΩ	"	"
R319	QRD141J-751SY	750 Ω	"	"
R320	QRD141J-222SY	2.2 kΩ	"	"
R351	QRD141J-393SY	39 kΩ	"	"
R352	QRD141J-822SY	8.2 kΩ	"	"
R353	QRD141J-152SY	1.5 kΩ	"	"
R354	QRD141J-821SY	820 Ω	"	"
R355	QRD141J-393SY	39 kΩ	"	"
R356	QRD141J-682SY	6.8 kΩ	"	"
R357	QRD141J-182SY	1.8 kΩ	"	"
R358	QRD141J-821SY	820 Ω	"	"
R359	QRD141J-223SY	22 kΩ	"	"
R403	QRD141J-563SY	56 kΩ	"	"
R404	QRD141J-563SY	"	"	"
R405	QRD141J-222SY	2.2 kΩ	"	"
R406	QRD141J-222SY	"	"	"
R407	QRD141J-134SY	130 kΩ	"	"
R408	QRD141J-134SY	"	"	"
R409	QRD141J-391SY	390 Ω	"	"
R410	QRD141J-391SY	"	"	"
R411	QRD141J-473SY	47 kΩ	"	"
R412	QRD141J-473SY	"	"	"
R413	QRD141J-224SY	220 kΩ	"	"
R414	QRD141J-224SY	"	"	"
R415	QRD141J-153SY	15 kΩ	"	"
R416	QRD141J-153SY	"	"	"
R417	QRD141J-332SY	3.3 kΩ	"	"
R418	QRD141J-332SY	"	"	"

⚠ : Safety Parts

Resistors

Item No.	Part Number	Rating		Description	
R419	QRD141J-102SY	1 kΩ	1/4 W	Carbon	
R420	QRD141J-102SY	"	"	"	
R421	QRD141J-221SY	220 Ω	"	"	⚠
R422	QRD141J-221SY	"	"	"	⚠
R423	QRD141J-564SY	560 kΩ	"	"	
R424	QRD141J-564SY	"	"	"	
R461	QRD141J-334SY	330 kΩ	"	"	
R462	QRD141J-334SY	"	"	"	
R463	QRD141J-104SY	100 kΩ	"	"	
R464	QRD141J-104SY	"	"	"	

⚠ : Safety Parts

Others

Item No.	Part Number	Rating	Description
P104	QMV5005-002		2 Pins Plug
S401	QSP0259-107		Select Switch
PHAUX	E03591-41F		Pin Jack
	EWR25J-06DD		Flat Cable
	E03572-019P		Antenna Terminal
	E300098-001		Shield Case
	E43727-001		Tab
	E67125-001		LED Holder (Signal)
	E67126-001		LED Holder (Tuned)
	E67127-001		LED Holder (Stereo)
	QAA2232-002		Tuning Capacitor
	QMV5005-002		2 Pins Plug
	QMV5005-004		4 Pins Plug
	QMV5005-006		6 Pins Plug

8-(2) TXX-253 Main Amp., Power Supply and All Functions P.C. Board Ass'y

The number of TXX-253 □ varies according to the area employed. See below table.

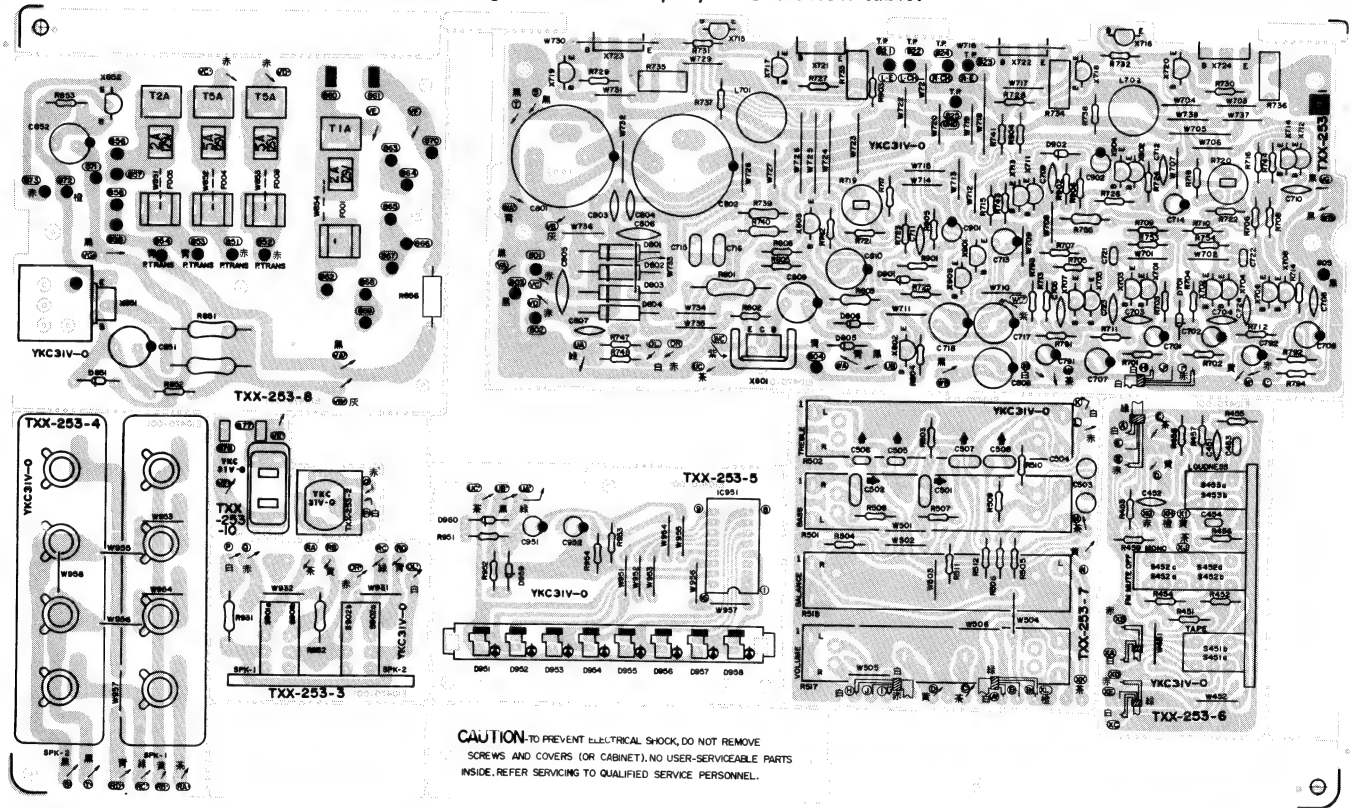


Fig. 13

Each Individual P.C. Board Location

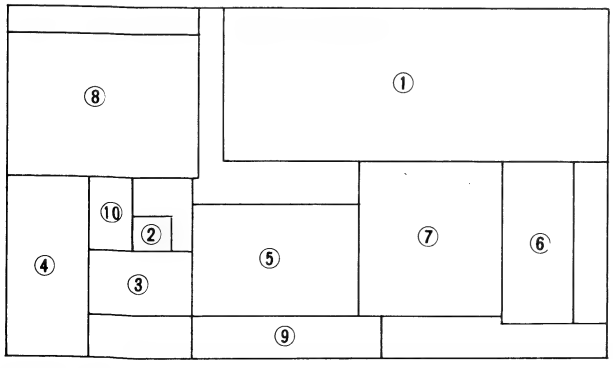


Fig. 14

① TXX-253□-1 : Main Amp. P.C. Board Ass'y
② TXX-253-2 : Headphones Jack P.C. Board Ass'y
③ TXX-253-3 : Speaker Select Switch P.C. Board Ass'y
④ TXX-253-4 : Speaker Terminal P.C. Board Ass'y
⑤ TXX-235-5 : Power Indicator L.E.D. P.C. Board Ass'y
⑥ TXX-253-6 : Mode Select Switch P.C. Board Ass'y
⑦ TXX-253-7 : Volume Control P.C. Board Ass'y
⑧ TXX-253□-8 : Power Supply P.C. Board Ass'y
⑨ TXX-253-9 : "CAUTION" Printed Board (for U.S.A. only)
⑩ TXX-253□-10 : AC Socket P.C. Board Ass'y

Note:
In □ should be indicated an area code according to the table shown below when placing an order.

Designated area	P.C. Board Ass'y
Europe	TXX-253 F
U.K.	TXX-253 E

Note:
The specific symbols (赤 , 黒 , 白 , ... etc.) on a surface of P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly at the factory.

Transistors

Item No.	Part Number	Rating		Description	
		PC	fT		Maker
X701	2SC1775AV(F1)	0.2 W	200 MHz	Silicon	Hitachi
X702	2SC1775AV(F1)	"	"	"	"
X703	2SC1775AV(F1)	"	"	"	"
X704	2SC1775AV(F1)	"	"	"	"
X705	2SA872AV(E)	0.3 W	120 MHz	"	"
X706	2SA872AV(E)	"	"	"	"
X707	2SA872AV(E)	"	"	"	"
X708	2SA872AV(E)	"	"	"	"
X711	2SA872AV(E)	"	"	"	"
X712	2SA872AV(E)	"	"	"	"
X713	2SA949(O,Y)	3 W	"	"	Toshiba
X714	2SA949(O,Y)	"	"	"	"
X715	2SC458(C)	0.2 W	230 MHz	"	Hitachi
X716	2SC458(C)	"	"	"	"
X717	2SC2235(O,Y)	0.9 W	120 MHz	"	Toshiba
X718	2SC2235(O,Y)	"	"	"	"
X719	2SA965(O,Y)	"	"	"	"
X720	2SA965(O,Y)	"	"	"	"
X721	2SD716LB(O,R)	60 W	12 MHz	"	"
X722	2SD716LB(O,R)	"	"	"	"
X723	2SB686LB(O,R)	"	10 MHz	"	"
X724	2SB686LB(O,R)	"	"	"	"
X801	2SD313V(D,E)	30 W	8 MHz	"	Sanyo
X802	2SA1029(C)	0.2 W	200 MHz	"	Hitachi
X803	2SA872AV(E)	0.3 W	120 MHz	"	"
X851	2SD313V(D,E)	30 W	8 MHz	"	Sanyo
X852	2SC458(D)	0.2 W	230 MHz	"	Hitachi
X901	2SA872AV(E)	0.3 W	120 MHz	"	"
X902	2SA872AV(E)	"	"	"	"
X903	2SC1775AV(F)	0.2 W	200 MHz	"	"
X904	2SC1775AV(F)	"	"	"	"

Integrated Circuit

Item No.	Part Number	Rating	Description	
		Pc		Maker
IC951	BA684		IC	Toyo dengu

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D701	RD13EB3		Silicon (Zener)	NEC
D801	S3V20F		Silicon	Shindengen ⚠
D802	S3V20F		"	" ⚠
D803	S3V20F		"	" ⚠
D804	S3V20F		"	" ⚠
D805	RD13EB3		Silicon (Zener)	NEC
D806	RD13EB3		"	"
D901	1S2076-31		Silicon	Hitachi
D902	1S2076-31		"	"
D951	SLB-26GG		Silicon (Zener)	NEC
D952	SLB-26GG		"	Toyo Dengu
D953	SLB-26GG		"	"
D954	SLB-26GG		"	"
D955	SLB-26GG		"	"
D956	SLB-26GG		"	"
D957	SLB-26GG		"	"
D958	SLB-26GG		"	"
D959	1S2076-31		Silicon	Hitachi
D960	1S2076-31		"	"

⚠ : Safety Parts

Coils

Item No.	Part Number	Rating	Description
L701	E04059-1R2		Choke Coil
L702	E04059-1R2		"

Capacitors

Item No.	Part Number	Rating		Description
C451	QCS21HJ-151	160 PF	50 V	Ceramic
C452	QCS21HJ-151	"	"	"
C453	QFM31HK-183	0.018 μF	"	Mylar
C454	QFM31HK-183	"	"	"
C501	QFM31HK-333	0.033 μF	"	"
C502	QFM31HK-333	"	"	"
C503	QEZ0046-224	0.22 μF	"	Electrolytic
C504	QEZ0046-224	"	"	"
C505	QFM31HK-182	1800 PF	50 V	Mylar
C506	QFM31HK-182	"	"	"
C507	QFM31HK-183	0.018 μF	"	"
C508	QFM31HK-183	"	"	"
C701	QET51HR-225	2.2 μF	"	Electrolytic
C702	QET51HR-225	"	"	"
C703	QCS21HJ-101	100 PF	"	Ceramic
C704	QCS21HJ-101	"	"	"
C705	QCS21HJ-100	10 PF	"	"
C706	QCS21HJ-100	"	"	"
C707	QET51CR-107	100 μF	16 V	Electrolytic
C708	QET51CR-107	"	"	"
C709	QCS21HJ-390	39 PF	50 V	Ceramic
C710	QCS21HJ-390	"	"	"
C711	QCS21HJ-331	330 PF	"	"
C712	QCS21HJ-331	"	"	"
C713	QET51HR-226	22 μF	"	Electrolytic
C714	QET51HR-226	"	"	"
C715	QFM31HK-473	0.047 μF	"	Mylar
C716	QFM31HK-473	"	"	"
C717	QET51HR-107	100 μF	"	Electrolytic
C718	QET51VR-107	"	35 V	"
C723	QCS21HJ-330	33 PF	50 V	Ceramic
C724	QCS21HJ-330	"	"	"
C791	QET51HR-475	4.7 μF	"	Electrolytic
C792	QET51HR-475	"	"	"
C801	QEW91VA-688E	6800 μF	35 V	"
C802	QEW91VA-688E	"	"	"
C803	QCF21HP-473	0.047 μF	50 V	Ceramic
C804	QCF21HP-473	"	"	"
C805	QCE22HP-103	0.01 μF	500 V	"
C806	QCE22HP-103	"	"	"
C807	QCF21HP-103	"	50 V	"
C808	QET51CR-227	220 μF	16 V	Electrolytic
C809	QET51CR-477	470 μF	"	"
C810	QET51VR-107	100 μF	35 V	"
C851	QET51CR-227	220 μF	16 V	"
C852	QET51CR-227	"	"	"
C901	QET51AR-476	47 μF	10 V	"
C902	QET51AR-476	"	"	"
C951	QET51ER-106	10 μF	25 V	"
C952	QET51HR-225	2.2 μF	50 V	"

Resistors

Item No.	Part Number	Rating		Description
R451	QRD141J-332SY	3.3 kΩ	1/4 W	Carbon
R452	QRD141J-332SY	"	"	"
R453	QRD141J-332SY	"	"	"
R454	QRD141J-332SY	"	"	"
R455	QRD141J-223SY	22 kΩ	"	"

Resistors

Item No.	Part Number	Rating		Description
R456	QRD141J-223SY	22 kΩ	1/4 W	Carbon
R457	QRD141J-564SY	560 kΩ	"	"
R458	QRD141J-564SY	"	"	"
R459	QRD141J-333SY	33 kΩ	"	"
R501	QVZ5010-007	"		Variable (Bass)
R502	QVZ5010-007	"		Variable (Treble)
R503	QRD141J-123SY	12 kΩ	1/4 W	Carbon
R504	QRD141J-123SY	"	"	"
R505	QRD141J-182SY	1.8 kΩ	"	"
R506	QRD141J-182SY	"	"	"
R507	QRD141J-823SY	82 kΩ	"	"
R508	QRD141J-823SY	"	"	"
R509	QRD141J-182SY	1.8 kΩ	"	"
R510	QRD141J-182SY	"	"	"
R511	QRD141J-681SY	680 Ω	"	"
R512	QRD141J-681SY	"	"	"
R517	QVZ5010-008	250 kΩ		Variable (Main Volume)
R518	QVZ5010-009	"		Variable (Balance)
R701	QRD141J-222SY	2.2 kΩ	1/4 W	Carbon
R702	QRD141J-222SY	"	"	"
R703	QRD141J-104SY	100 kΩ	"	"
R704	QRD141J-104SY	"	"	"
R705	QRD149J-101S	100 Ω	"	" ⚠
R706	QRD149J-101S	"	"	" ⚠
R707	QRD149J-101S	"	"	" ⚠
R708	QRD149J-101S	"	"	" ⚠
R709	QRD141J-822SY	8.2 kΩ	"	"
R710	QRD141J-822SY	"	"	"
R711	QRD141J-561SY	560 Ω	"	"
R712	QRD141J-561SY	"	"	"
R713	QRD141J-683SY	68 kΩ	"	"
R714	QRD141J-683SY	"	"	"
R715	QRD141J-272SY	2.7 kΩ	"	"
R716	QRD141J-272SY	"	"	"
R717	QRD141J-332SY	3.3 kΩ	"	"
R719	QVP4A0B-102	1 kΩ		Variable
R721	QRD141J-152SY	1.5 kΩ	1/4 W	Carbon
R722	QRD141J-152SY	"	"	"
R723	QRD141J-332SY	3.3 kΩ	"	"
R724	QRD141J-332SY	"	"	"
R725	QRD141J-122SY	1.2 kΩ	"	"
R726	QRD141J-122SY	"	"	"
R727	QRD149J-100S	10 Ω	"	" ⚠
R728	QRD149J-100S	"	"	" ⚠
R729	QRD149J-100S	"	"	" ⚠
R730	QRD149J-100S	"	"	" ⚠
R731	QRD149J-271S	270 Ω	"	" ⚠
R732	QRD149J-271S	"	"	" ⚠
R733	QRM024K-R22	0.22 Ω	2 W	Metal Plate ⚠
R734	QRM024K-R22	"	"	" ⚠
R735	QRM024K-R22	"	"	" ⚠
R736	QRM024K-R22	"	"	" ⚠
R737	QRD149J-4R7S	4.7 Ω	1/4 W	Carbon ⚠
R738	QRD149J-4R7S	"	"	" ⚠
R739	QRD129J-4R7	"	1/2 W	" ⚠
R740	QRD129J-4R7	"	"	" ⚠
R741	QRD149J-470S	47 Ω	1/4 W	" ⚠
R742	QRD149J-470S	"	"	" ⚠
R743	QRD149J-330S	33 Ω	"	" ⚠
R744	QRD149J-330S	"	"	" ⚠
R755	QRD129J-182	1.8 kΩ	1/2 W	" ⚠
R747	QRD141J-432SY	4.3 kΩ	1/4 W	"
R748	QRD141J-432SY	"	"	"
R791	QRD141J-562SY	5.6 kΩ	"	"

Resistors

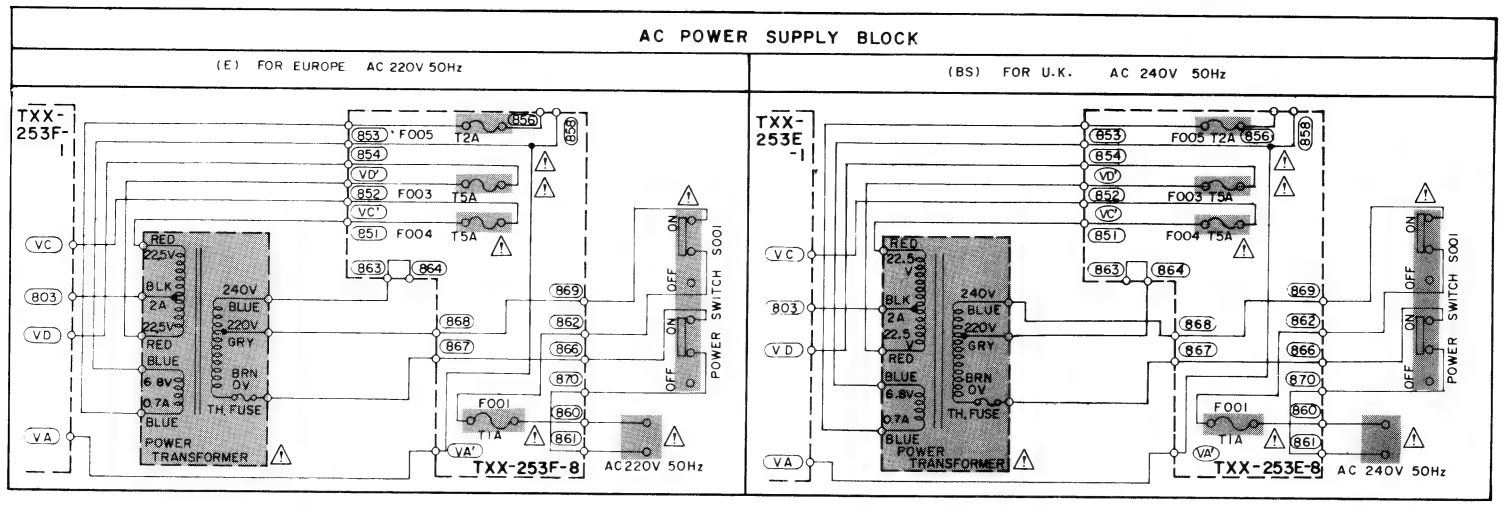
Item No.	Part Number	Rating		Description
R792	QRD141J-562SY	5.6 kΩ	1/4 W	Carbon
R793	QRD141J-472SY	4.7 kΩ	"	"
R794	QRD141J-472SY	"	"	"
R801	QRG027J-101	100 Ω	2 W	Oxide Metal Film ⚠
R802	QRD141J-682SY	6.8 kΩ	1/4 W	Carbon
R803	QRD129J-122	1.2 kΩ	1/2 W	" ⚠
R804	QRD141J-223SY	22 kΩ	1/4 W	"
R805	QRD149J-100S	10 Ω	"	" ⚠
R806	QRD141J-103SY	10 kΩ	"	"
R851	QRG027J-270	27 Ω	2 W	Oxide Metal Film ⚠
R852	QRD141J-392SY	3.9 kΩ	1/4 W	Carbon
R853	QRD141J-223SY	22 kΩ	"	"
R856	QRC121K-275EM	2.7 MΩ	1/2 W	Composition ⚠
R901	QRD141J-153SY	15 kΩ	1/4 W	Carbon
R902	QRD141J-153SY	"	"	"
R903	QRD141J-102SY	1 kΩ	"	"
R904	QRD141J-102SY	"	"	"
R905	QRD141J-681SY	680 Ω	"	"
R906	QRD141J-681SY	"	"	"
R931	QRD129J-181	180 Ω	1/2 W	" ⚠
R932	QRD129J-181	"	"	" ⚠
R952	QRD141J-390SY	39 Ω	1/4 W	"
R953	QRD141J-103SY	10 kΩ	"	"
R954	QRD141J-473SY	47 kΩ	"	"

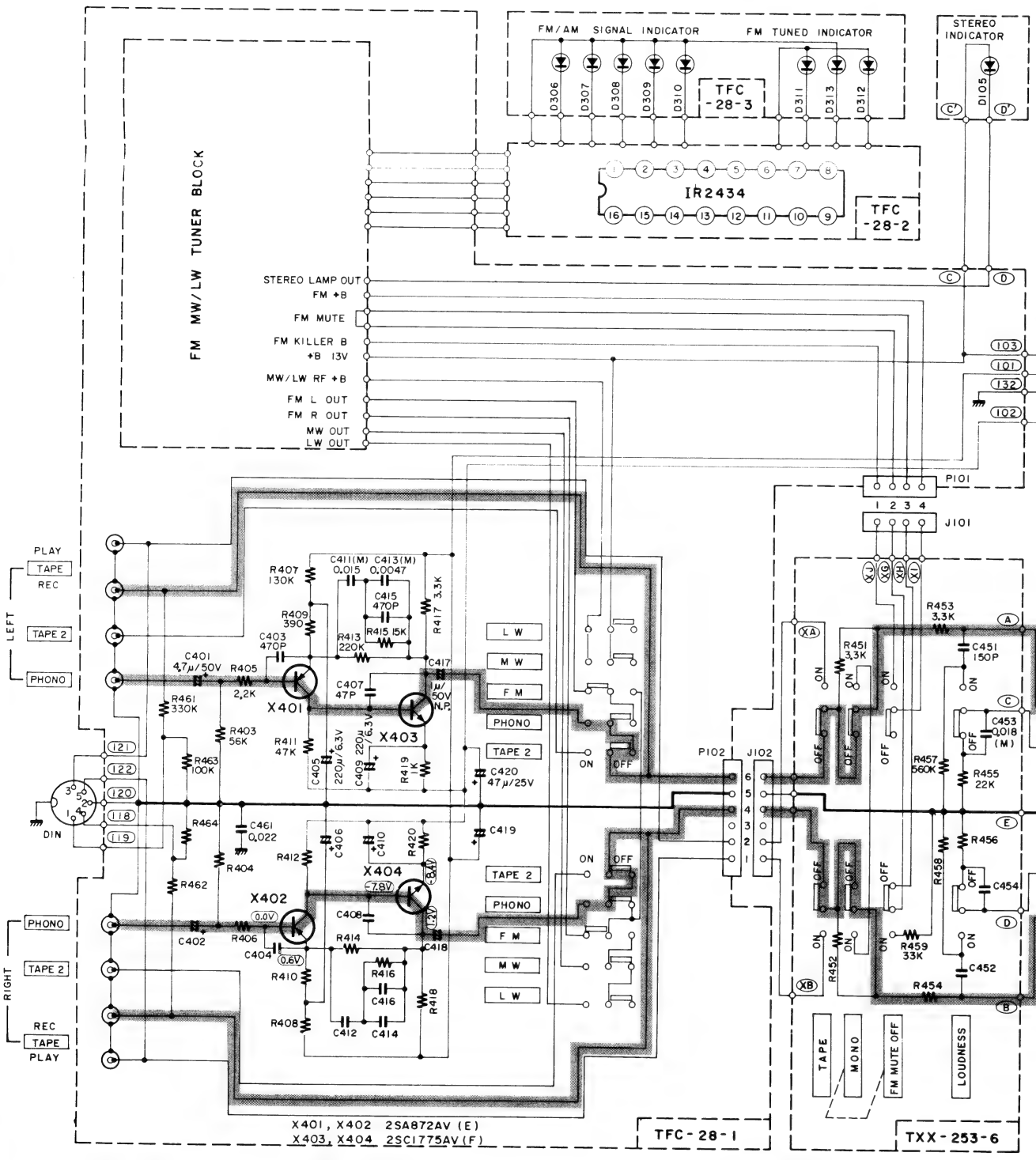
Others

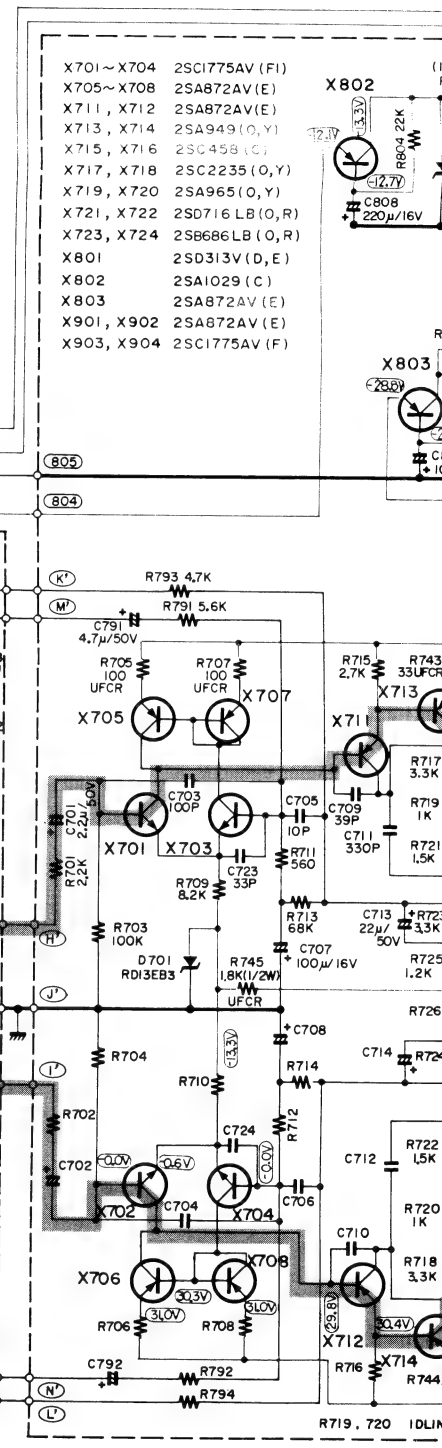
Item No.	Part Number	Rating	Description
	EWS012-032		Socket Wire Ass'y (2 pins)
	EWS014-027		Socket Wire Ass'y (4 pins)
	EWS016-019		Socket Wire Ass'y (6 pins)
	E03572-007EM		Speaker Terminal
	E300825-001		LED Holder
	E48965-002		Fuse Clip ⚠
	E61537-002		Heat-Sink
	QMS6302-102		Headphones Jack
	QSP0229-019		Push Switch (Speaker Select)
	QSP0249-114		Push Switch (TAPE. MONO/FM MUTE, LOUDNESS)

⚠ : Safety Parts

9. R-S11L Schematic Diagram





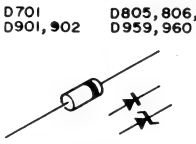


USING PARTS (REFFER TO SERVICE MANUAL)

RESISTORS
- UFCR : UNINFLAMABLE CARBON RESISTOR (1/4WATTS)
- UFOR : UNINFLAMABLE OXIDE METAL RESISTOR
- UFMR : UNINFLAMABLE METAL PLATE RESISTOR
- OTHERS : CARBON RESISTOR

CAPACITOR
- M MYLAR CAPACITOR
- N.P. NON POLARIZED ELECTROLYTIC CAPACITOR
- OTHERS : ELECTROLYTIC CAPACITOR OR CERAMIC CAPACITOR

D701, D901, 902



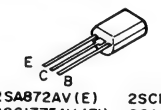
IS2076-31
RD13EB3

D805, 806, 851, D959, 960

D801~804

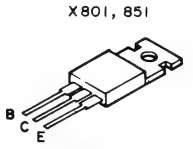
S3V20F

X401~404, X711~720, X802, 803, 852 / X701~708, X901~902



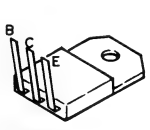
2SA872AV(E) 2SC1775AV(F)
2SC1775AV(F1) 2SA949(O,Y)
2SC458(C) 2SC458(D)
2SC2235(O,Y) 2SA965(O,Y)

X801, 851



2SD313V(D,E)

X721~724



2SB686LB(O,R)
2SD716LB(O,R)

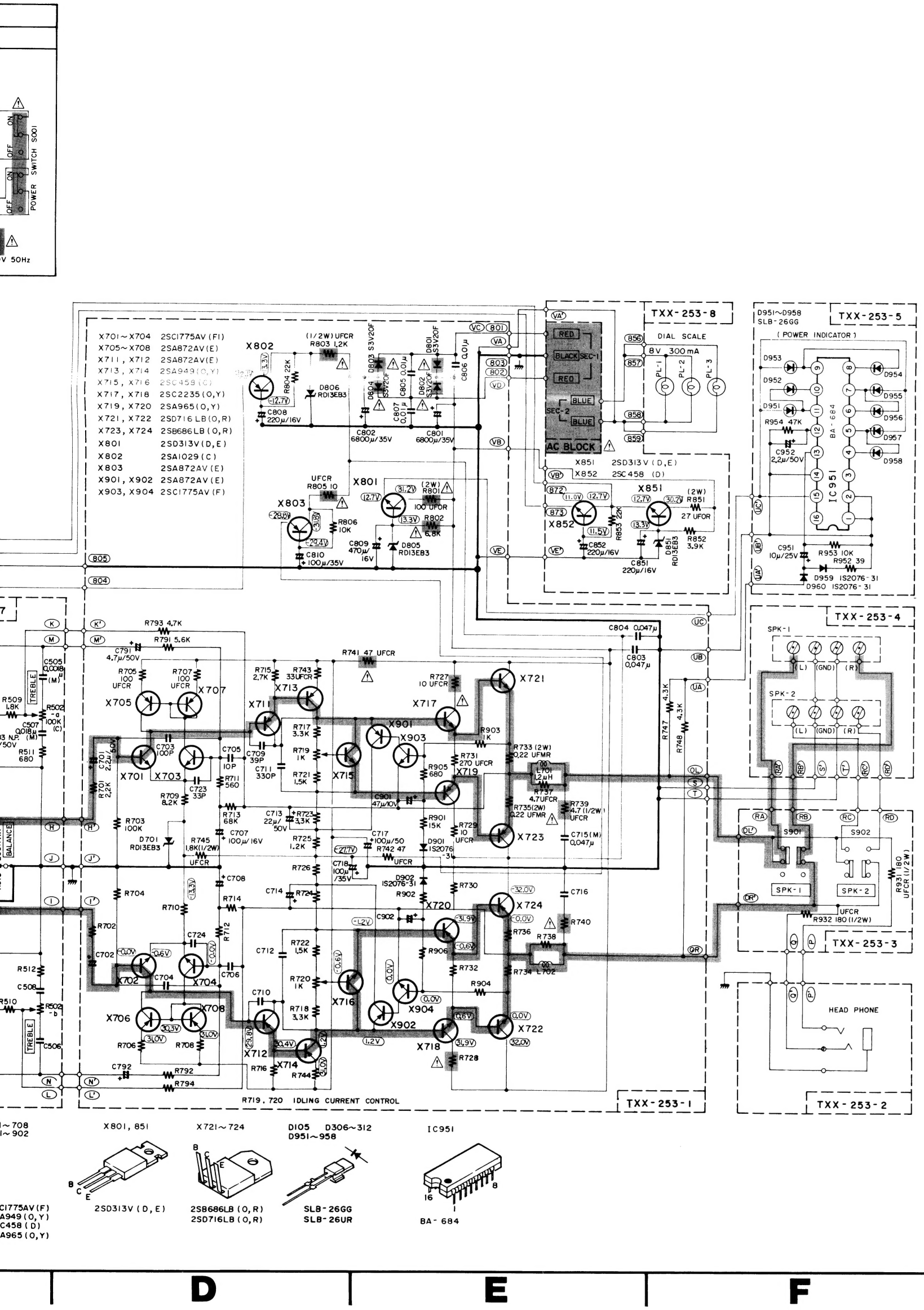
D105, D951

Printed Circuit Board Ass'y Locations

P.C. Board Ass'y	Description	Page
TFC-28	FM/AM Tuner and Equalizer Amp. P.C. Board Ass'y	8
TXX-253	Main Amp., Power Supply and All Functions P.C. Board Ass'y	11

Notes:

1. ⬭ shows DC voltage to the chassis with no signal input.
2. * ⬭ shows DC voltage to the chassis when 10 mV antenna input applied.
3. Voltage values in ▭ are positive.
4. Voltage values in ▭ are negative.
5. —— indicates positive B power supply.
6. —— indicates negative B power supply.
7. ▒▒ indicates signal path.
8. When replacing the parts in the (those marked with ⚠, be sure t to ensure safety.
9. Parts in red indicate transistors o
10. This is the standard circuit diagra The design and contents are su notice.



X801, 851

2SD313V (D, E)

X721~724

2SB686LB (O, R)
2SD716LB (O, R)

D105 D306~312
D951~958

SLB-26GG
SLB-26UR

IC951

BA-684

al input.
10 mV

8. When replacing the parts in the darkened area (▒▒) and those marked with ⚠, be sure to use the designated parts to ensure safety.
9. Parts in red indicate transistors or ICs.
10. This is the standard circuit diagram.
The design and contents are subject to change without notice.

R-S11L
No. 2517

Printed Circuit Board Ass'y Locations

P.C. Board Ass'y	Description	Page
TFC-28	FM/AM Tuner and Equalizer Amp. P.C. Board Ass'y	8
TXX-253	Main Amp., Power Supply and All Functions P.C. Board Ass'y	11

Notes:

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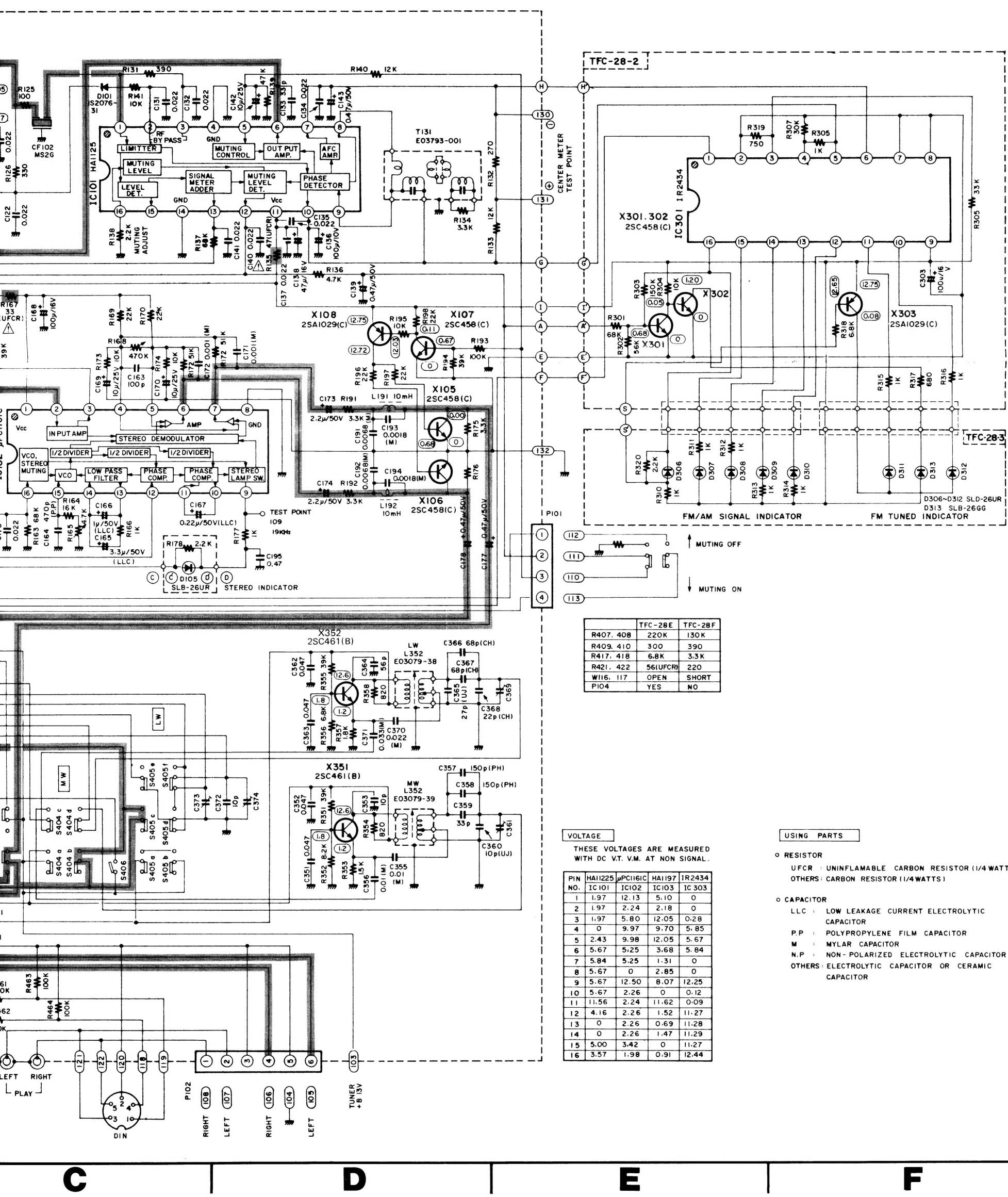

	TFC-28E	TFC-28F
R407. 408	220K	130K
R409. 410	300	390
R417. 418	6.8K	3.3K
R421. 422	56(UFCR)	220
W116. 117	OPEN	SHORT
P104	YES	NO

VOLTAGE

THESE VOLTAGES ARE MEASURED WITH DC V.T. V.M. AT NON SIGNAL.

PIN NO.	HA1225 IC101	μPC1161C IC102	HA1197 IC103	IR2434 IC303
1	1.97	12.13	5.10	0
2	1.97	2.24	2.18	0
3	1.97	5.80	12.05	0.28
4	0	9.97	9.70	5.85
5	2.43	9.98	12.05	5.67
6	5.67	5.25	3.68	5.84
7	5.84	5.25	1.31	0
8	5.67	0	2.85	0
9	5.67	12.50	8.07	12.25
10	5.67	2.26	0	0.12
11	11.56	2.24	11.62	0.09
12	4.16	2.26	1.52	11.27
13	0	2.26	0.69	11.28
14	0	2.26	1.47	11.29
15	5.00	3.42	0	11.27
16	3.57	1.98	0.91	12.44

USING PARTS

- RESISTOR
  - UFCR : UNINFLAMABLE CARBON RESISTOR (1/4 WATTS)
  - OTHERS: CARBON RESISTOR (1/4 WATTS)
- CAPACITOR
  - LLC : LOW LEAKAGE CURRENT ELECTROLYTIC CAPACITOR
  - P.P : POLYPROPYLENE FILM CAPACITOR
  - M : MYLAR CAPACITOR
  - N.P : NON-POLARIZED ELECTROLYTIC CAPACITOR
  - OTHERS: ELECTROLYTIC CAPACITOR OR CERAMIC CAPACITOR

to the chassis with no signal input.
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e positive.
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B power supply.
B power supply.
th.

8. When replacing the parts in the darkened area (▒) and those marked with ⚠, be sure to use the designated parts to ensure safety.
9. Parts in red indicate transistors or ICs.
10. This is the standard circuit diagram.
    The design and contents are subject to change without notice.

10. Packing Materials and Part Numbers

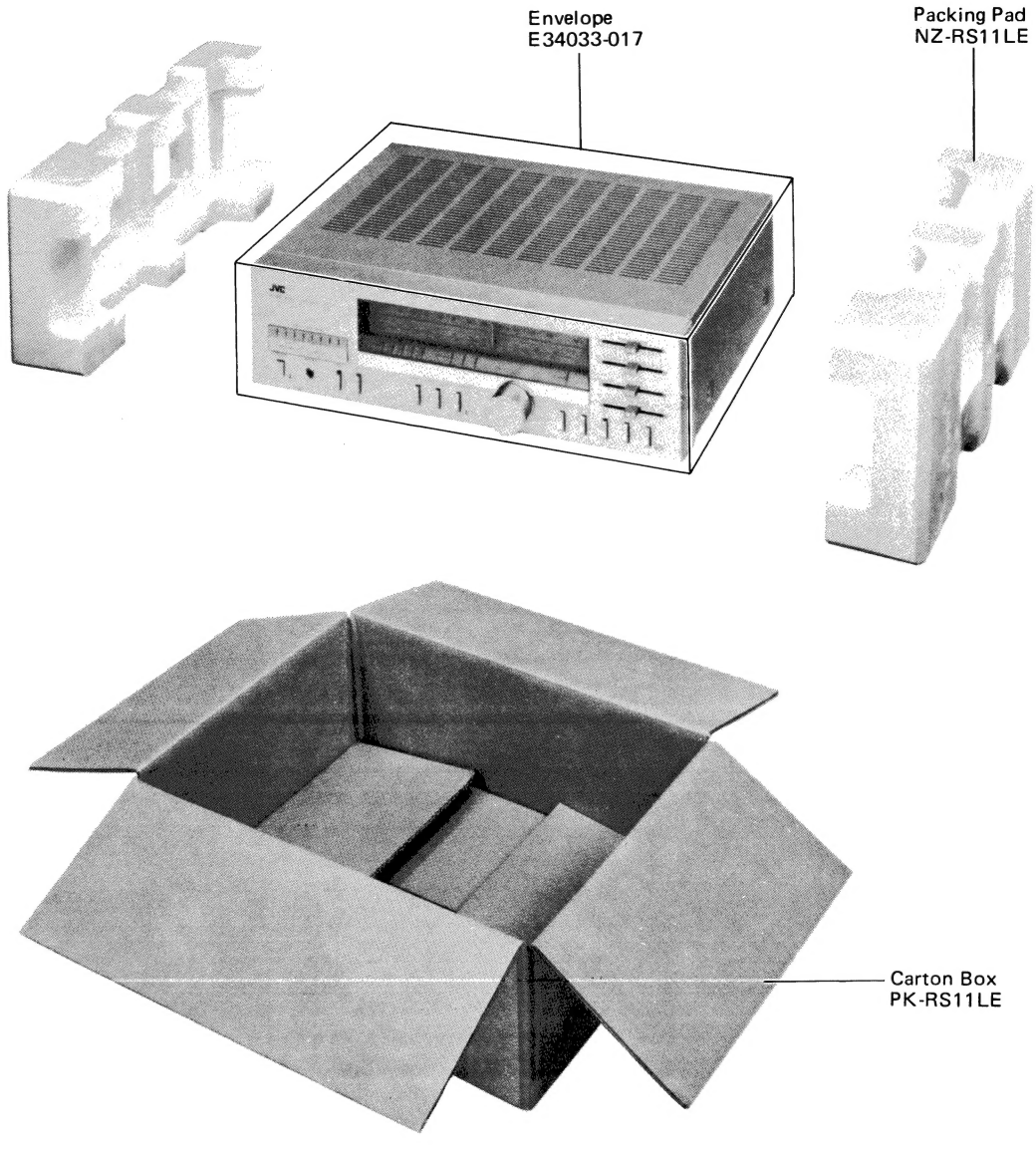

Fig. 15

11. Accessories List

Item No.	Part Number	Description	Q'ty
1	E30580-820A	Instruction Book	1
2	BT20013C	Warranty Card (for U.K. only)	1
3	E03614-004	FM Antenna	1
4	E41202-2	Envelope for Instruction Book	1